

TRAFFIC CIRCULATION ELEMENT

TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE NO.</u>
I. Introduction	1
II. Data Summary and Analysis.....	4
A. Level of Service	8
1. Level-of-Service A.....	8
2. Level-of-Service B.....	8
3. Level-of-Service C.....	8
4. Level-of-Service D	8
5. Level-of-Service E.....	9
6. Level-of-Service F.....	9
III. Implementation.....	19

LIST OF TABLES

<u>NUMBER</u>	<u>TITLE</u>	<u>PAGE NO.</u>
1	Annual Average Daily Traffic (AADT) 1996-2001 South Walton Co.	7
2.	LOS Criteria Using V/C Ratios.....	8
3.	Present and Projected Levels of Service (South Walton County)...	10
4.	Bicycle and Pedestrian Needs.....	15
5.	FDOT Five-Year Construction Plan.....	17
6.	Adopted Year 2025 Transportation Needs Plan (South Walton County).....	18
7.	Trip Generation Rates	20
8.	Setback Distance by Facility Type and Area Type.....	26
9.	Right-of-Way by Facility Type and Area Type.....	27

LIST OF FIGURES

<u>FIGURE</u>	<u>PAGE NO.</u>
1. Urban Area and level of Service Boundaries.....	2
2. MPO Study Area.....	3
3. Existing Functional Classifications and Number of Lanes (South Walton Co.)	5
4. Locations of traffic Counts (South Walton County)	6
5. Future Traffic Circulation	19

I. INTRODUCTION

The purpose of the Traffic Circulation Element is to provide a guide for development of streets to meet existing and future traffic needs. The Element includes an analysis of the existing system needs and levels of service. The future needs are also analyzed in coordination with the Future Land Use Element.

Freeport is a growing community of an estimated 1,235 people (US Census for 2000). Applying the 3.5 percent annual growth rate from 1990 to 2000 the City is expected to grow to 1,744 by the year 2010, and to 2,253 in the year 2020.

Major transportation routes in Freeport include: (1) SR 83 (US 331) which travels north-south from SR 8 (I-10) to SR 30 (US 98), and SR 20 which travels east-west from Bay County to Niceville.

There are no seaports, airports, limited access or rail facilities within the city limits of Freeport.

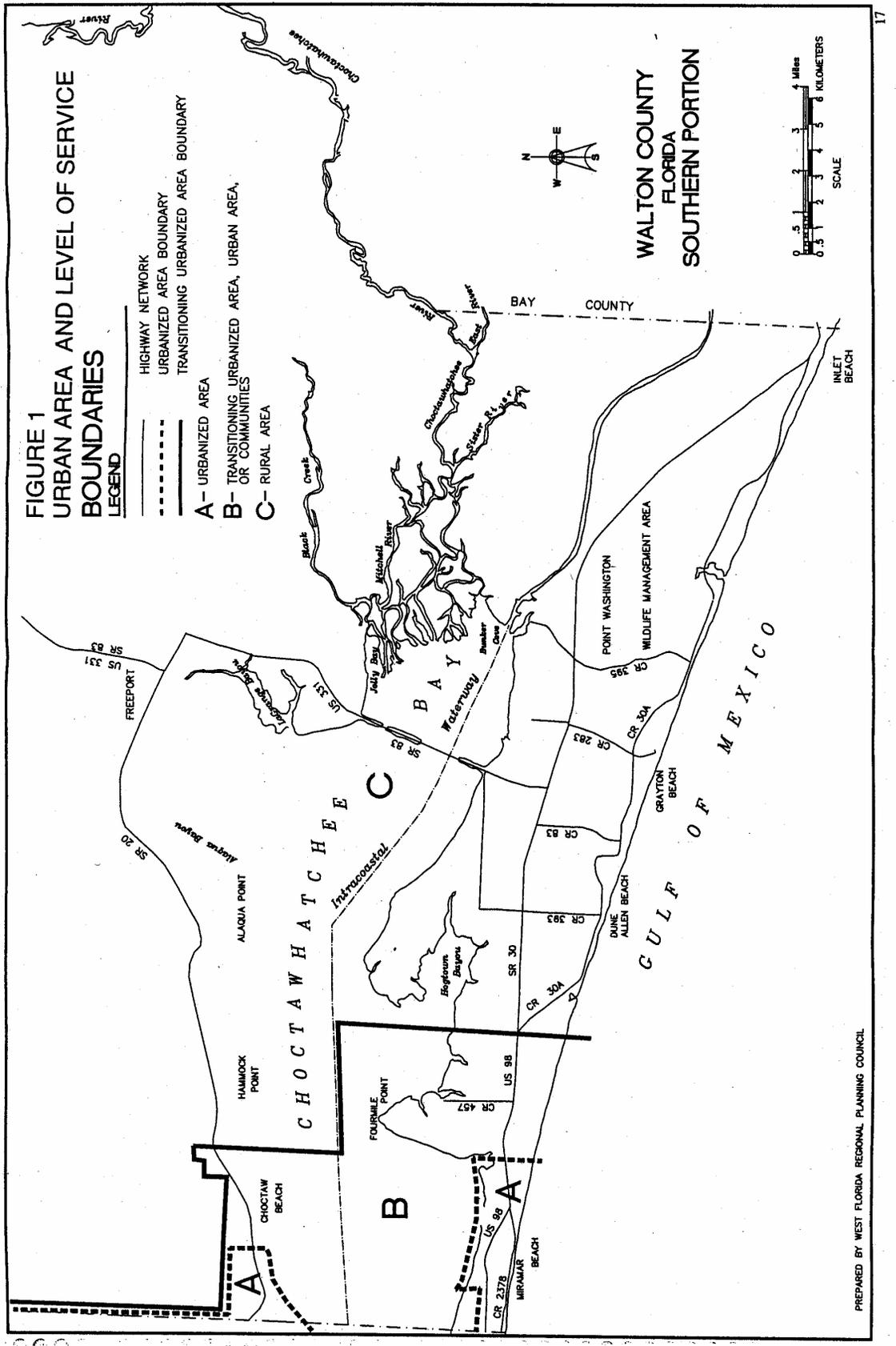
While Freeport is not inside the urbanized boundary of the Okaloosa-Walton Beach Transportation Planning Organizations (TPO) are it is contained in the TPO's study area. Reference Figures 1 and 2). Therefore the TPO has primary responsibility for transportation planning for the City of Freeport. The TPO is staffed by the West Florida Regional Planning Council.

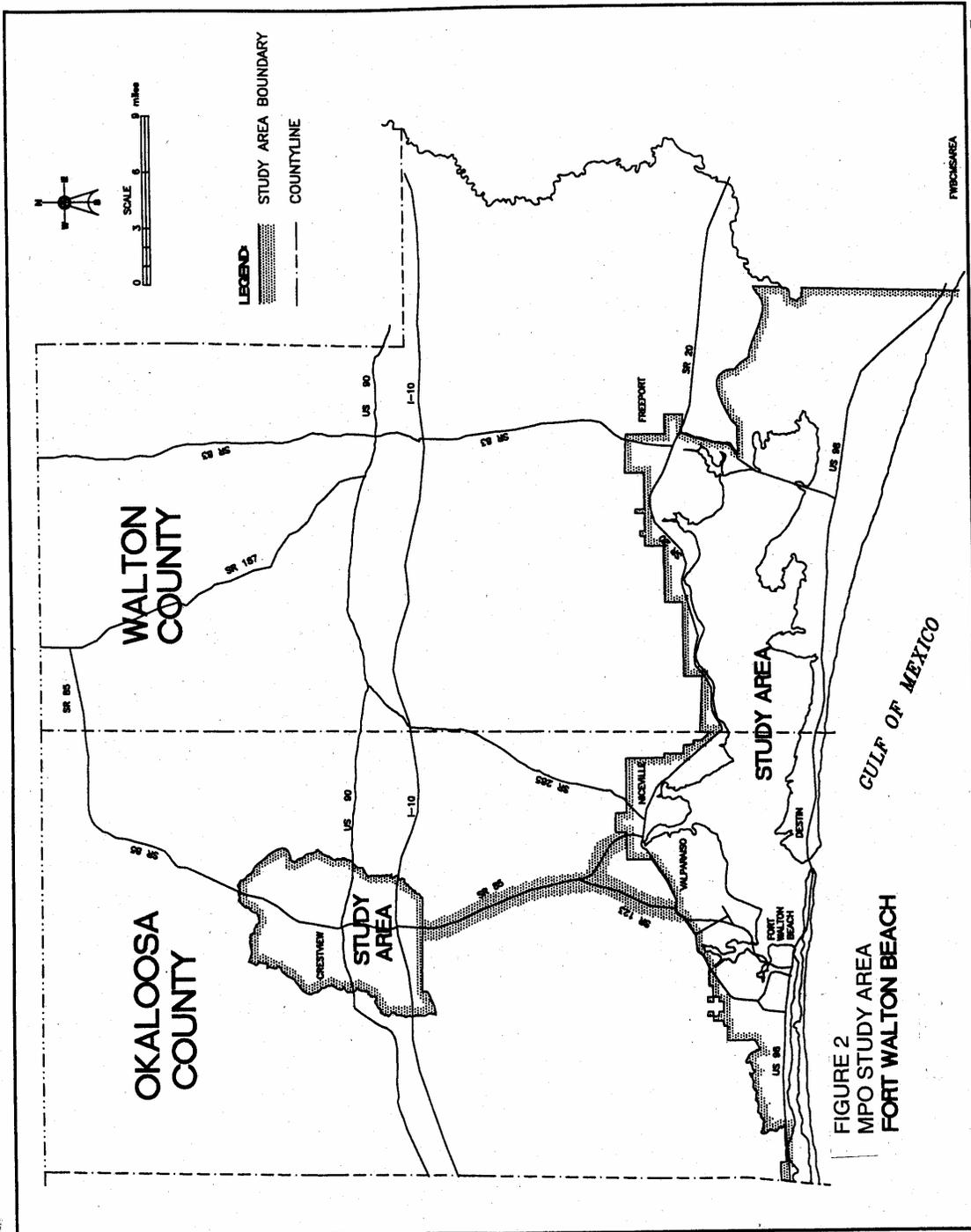
The purpose of the TPO, as defined by the 1962 Federal Highway Act, is to establish a continuing, cooperative and comprehensive planning process in urbanized areas over 50,000 in population. Federal regulations specifically call for two products; a Long Range Transportation Plan and a Transportation Improvement Program (TIP).

The long range transportation planning process for the Freeport area is conducted through the TPO's Fort Walton Beach Urbanized Area Transportation Study (FWBUATS). The current FWBUATS plan, adopted in 1997, extends the study horizon to the year 2020.

The TIP is the TPO's five year implementation schedule for transportation improvements. This document is updated and adopted annually by the TPO. It represents TPO priorities, with projects pulled from the FWBUATS and traffic operations studies conducted by the Florida Department of Transportation (FDOT).

The TIP and the FDOT five year work program are closely coordinated. Information from the FWBUATS and TIP provide essential input to this element.





II. DATA SUMMARY AND ANALYSIS

The first step in the traffic circulation analysis process is to determine how existing roadways function. This determination is necessary in order to determine the functions that components of the system serve. In order to determine these functions, a classification system developed by the FDOT was used. These classifications categorize roadways according to the character of service they provide. The classifications with their definitions are:

1. Major Arterials – Routes which generally serve the major trip centers of activity, have the highest traffic volumes, and longest trip lengths.
2. Minor Arterials – Routes which generally serve the major trip centers of activity and augment major arterials, and have lower traffic volumes and shorter trip lengths than major arterials.
3. Major Collectors – Streets which collect and distribute traffic between higher volume arterials and local streets, or directly to traffic destinations.

Figure 3 presents the existing functional classification system and number of lanes for the roadways in the DOT system in south Walton County including those in the City of Freeport.

The Florida Department of Transportation conducts traffic counts throughout Walton County. These counts, called Annual Average Daily Trips (AADT), are actual counts that have been adjusted using factors that take into consideration the fluctuations in seasonal and monthly traffic volumes. The traffic count locations used in this Element are shown in Figure 4 and listed in Table 1.

The capacity of a roadway refers to the maximum daily or hourly rate at which vehicles can reasonably be expected to traverse a point or uniform section of a lane or roadway during a given time period under prevailing roadway, traffic, and control conditions (Highway Capacity Manual, Special Report 209, 1998). When dealing with capacity analysis, the peak hour of traffic volume is the focal point. This is true because the peak hour represents the most critical period for operations and has the highest capacity requirements.

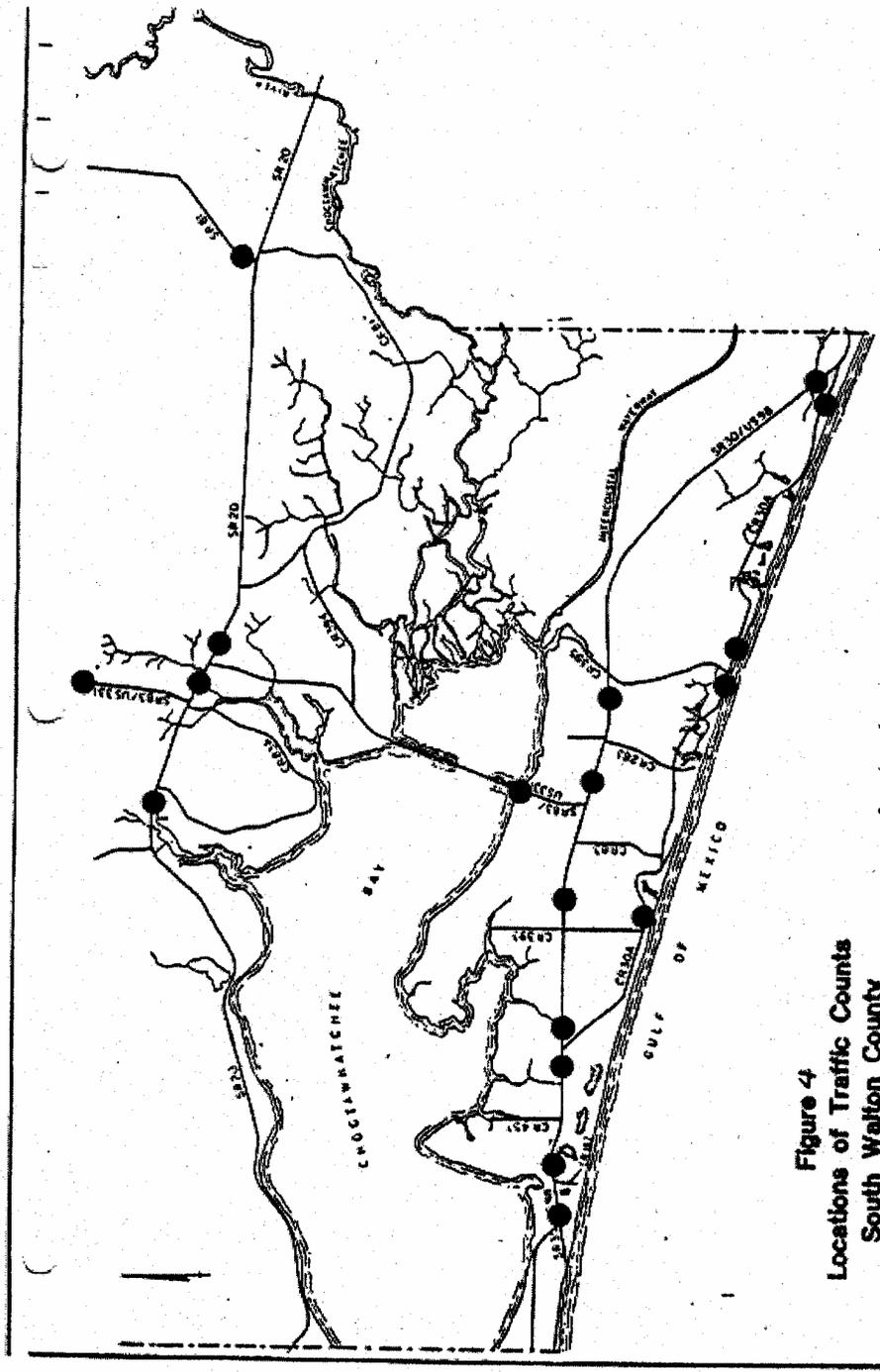


Figure 4
Locations of Traffic Counts
South Walton County

● Traffic Count Stations

BARRETT DAFEN CARLAN INC.
ARCHITECTS ENGINEERS PLANNERS SURVEYORS
10000 W. ALA. HWY. 2
DAVENPORT, FL 33840

TABLE 1

Annual Average Daily Traffic (AADT) 1996-2001
South Walton County

	AADT 1996	AADT 1997	AADT 1998	AADT 1999	AADT 2000	AADT 2001
SR 83 - I-10 to Freeport City Limit	7,500	7,200	7,600	8,100	8,893	8,650
SR 20 - CR 83A to US 331N	3,600	4,200	3,800	4,300	4,100	4,200
SR 20 - US 331N to US 331S	10,300	9,000	11,000	12,000	11,000	14,000
SR 20 - US 331S to the Bay County Line	3,100	3,800	3,300	3,600	3,900	4,500
SR 81 - N. of SR 20	N/A	N/A	N/A	N/A		
US 98 - CR 395 to Bay County Line	5,500	6,800	7,000	9,700	7,000	7,700
CR 30A - US 98 (SR 30) to CR 393	5,500	5,000	6,000	7,000	5,900	6,100
CR 30A - CR 393 to CR 395	4,600	4,967	6,000	6,833	5,633	5,800
CR 30A - CR 395 to US 98 (SR 30)	3,650	5,450	4,600	7,950	5,450	7,250
US 98 - Okaloosa County Line to Old US 98	26,256	33,052	34,200	34,200	37,200	37,970
US 98 - Old US 98 to CR 187S	24,500	27,500	29,500	35,500	34,000	34,500
SR 83 - Freeport City Limit to SR 20	6,100	6,300	8,300	9,100	7,950	8,550
US 98 - CR 187S to CR 30A	20,750	20,000	21,750	26,800	NA	25,000
US 98 - CR 30A to CR 393	16,500	17,000	20,500	20,500	19,000	19,000
US 98 - CR 393 to US 331	10,500	14,100	16,300	16,400	17,300	15,000
US 98 - US 331 to CR 395	8,200	11,800	11,100	13,600	10,950	11,600
SR 83 - SR 20 to North approach to Choctawatchee Bay Bridge	9,200	7,400	8,100	9,800	8,700	11,500
SR 83 - North Approach to Choctawatchee Bay Bridge to SR 30 (US 98)	6,200	7,000	7,900	8,700	7,800	10,900

Source: Okaloosa-Walton Transportation Planning Organization Congestion Management System Plan – Adopted Sept. 2002

A. Level of Service

The Volume/Capacity (V/C) Ratio is used to determine the level of service on a roadway. These ratios are then used to determine when improvements are required. Table 2 shows the appropriate level of service associated with various V/C ratios.

TABLE 2
LOS CRITERIA USING V/C RATIOS

LOS	VOLUME/CAPACITY (V/C) RATIO
A	0.00 to 0.30
B	0.31 to 0.50
C	0.51 to 0.75
D	0.76 to 0.90
E	0.91 to 1.00
F	More than 1.00

Source: Department of Community Affairs, Model Traffic Circulation Element, Pg. 9, May 1987.

In order to better understand the term "level of service," the descriptions below are provided. These terms are generally accepted in transportation planning. It should be noted that generally, a LOS of C is deemed acceptable for average daily conditions and a LOS of D for peak hour conditions.

1. **Level-of-service A** describes primarily free-flow traffic operations at average travel speeds. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Stopped delay at intersections is minimal.
2. **Level-of-service B** represents reasonable unimpeded traffic flow operations at average travel speeds. The ability to maneuver within the traffic stream is only slightly restricted and stopped delays are not bothersome. Drivers are not generally subjected to appreciable tension.
3. **Level-of-service C** represents stable traffic flow operations. However, ability to maneuver and change lanes may be more restricted than LOS B and longer queues and/or adverse signal coordination may contribute to lower average travel speeds. Motorists will experience noticeable tension while driving.
4. **Level-of-service D** Borders on a range in which small increases in traffic flow may cause substantial increases in traffic flow may

cause substantial increases in approach delay and, hence, decrease in speed. This may be due to adverse signal progression, inappropriate signal timing, high volumes, or some combination of these.

5. **Level-of-service E** represents traffic flow characterized by significant delays and lower operating speeds. Such operations are caused by some combination of adverse progression, high signal density, extensive queuing at critical intersections, and inappropriate signal timing.
6. **Level-of-service F** represents traffic flow characterized at extremely low speeds. Intersection congestion is likely at critical signalized locations, with high approach delays resulting. Adverse signal progression is frequently a contributor to this condition.

In order to determine future traffic conditions through the planning period, a volume-to-capacity analysis was prepared. This analysis was based on projecting future traffic volume, assuming that the average annual increase in traffic as measured by the AADTs from 1996 through 2001 would continue into the future.

Table 3 shows the present (2001) and projected volumes on the major roadways in the south County. An analysis of the data in this table shows that SR 20 from US 331N to US 331S exceeded level of service C capacity in 2001, SR30 (US 98) from the Okaloosa County Line to Old US 98 exceeded level of service E capacity by 1999, SR 30 (US 98) from CR 187S to CR 393 exceeded level of service E capacity in 1999, SR 30 (US 98) from CR 393 to US331 exceeded level of service E in 1998 and remained so until 2001, SR 30 (US 98) from US331 to CR 395 exceeded level of service C in 1997 and be corrected between 2005 and 2010, SR 83 (US 331) from Interstate 10 to the Freeport City Limit exceeded level of service C in 2000, SR 83 (US331) from the Freeport City Limit to SR 20 is projected to exceed level of service C in 2010, SR 83 (US 331S) from SR 20 to the Northern approach to the Choctawatchee Bay Bridge exceeded level of service C in 2001 and is projected to exceed level of service E between 2005 and 2010, SR 83 (US 331S) from the Northern approach to the Choctawatchee Bay Bridge to SR 30 (US 98) is projected to exceed level of service C in 2005, CR 30A from US98 to CR 393 is projected to exceed level of service C in 2010, CR 30A from CR 393 to CR 395 is projected to exceed level of service C in 2010, and CR 30A from 393 to SR 30 (US 98) is projected to exceed level of service C in 2005.

TABLE 3
Present and Projected Levels of Service
South Walton County

STATE ROAD AND SEGMENT	FUNC. CLASS	NO. LNS.	FACILITY TYPE	TOTAL # OF SIG	SIG PER MI	SEG. LTH	LOS AREA	LOS (STD) & MAX VOL	FDOT COUNT STA #	2001 AADT	LEVEL OF SERVICE ANALYSIS		
											YEAR	VOLUME	LOS
State Route 20													
Okaloosa County Line to Eagle Creek	Principal Arterial	2	Undivided	0	0	1.5	Urbanized	(C) 13800	110	8300	2001	8300	C
											2005	8700	C
											2010	9600	C
Segment is on the Intrastate System													
Eagle Creek to Grassy Cove	Principal Arterial	2	Undivided	0	0	4.0	Trans	(C) 12900	110	Inactive	2001	N/A	N/A
											2005	8600	B
											2010	9600	B
Segment is on the Intrastate System													
Basin Bayou to CR 83A	Principal Arterial	2	Undivided	0	0	5.0	Rural Developed	(C) 12,700	89	4200	2001	4200	B
											2005	4500	B
											2010	5000	B
Segment is on the Intrastate System													
CR 83A to US 331N	Principal Arterial	2	Undivided	1	0.5	2.0	Rural Developed	(C) 11,000	89	4200	2001	4200	B
											2005	4500	B
											2010	5000	B
Segment is on the Intrastate System													
US 331N to US 331S	Principal Arterial	2	Undivided	1	0.66	1.5	Rural Developed	(C) 11,000	107	14000	2001	14000	D
											2005	16600	D
											2010	19800	E
Segment is on the Intrastate System													
US 331S to the Bay County Line	Principal Arterial	2	Undivided	0	0	13.8	Rural Undev	(C) 8600	69	4500	2001	4500	B
											2005	5100	B
											2010	5900	C
Segment is on the FIHS. Segment is not within the MPO planning Boundary, it is monitored at FDOT's request													
State route 30 (US 98)													
Okaloosa county Line to Old US 98	Principal Arterial	4	Divided	4	1.33	3.0	Urbanized	(C) 34,700	168T	37970	2001	37970	F
											2005	41100	F
											2010	45400	F
Segment is on the Intrastate System													

TABLE 3 (Continued)
Present and Projected Levels of Service
South Walton County

Old 98 to CR 187S (Sandestin)	Principle Arterial	6	Divided	1	1	1.0	Urbanized	(C) 52,100	253	34500	2001	34500	B
											2005	37300	B
											2010	41200	B
Segment is on the Intrastate System											LEVEL OF SERVICE ANALYSIS		
STATE ROAD AND SEGMENT	FUNC. CLASS	NO. LNS.	FACILITY TYPE	TOTAL # OF SIG	SIG PER MI	SEG. LTH	LOS AREA	LOS (STD) & MAX VOL	FDOT COUNT STA #	1999 AADT	YEAR	VOLUME	LOS
State Route 30 (US 98) (Continued)													
CR 187S to CR 30A	Principal Arterial	2	Undivided	1	0.33	3.0	Trans	(C) 13,100	255 257	25000 24500	2001	25000	F
											2005	26800	B
											2010	29600	C
Segment is on the FIHS. Segment is being 4 landed													
CR 30A to CR 393	Principal Arterial	2	Undivided	1	0.33	3	Rural Developed	(C) 11000	252	19000	2001	19000	D
											2005	24000	D
											2010	28200	F
Segment is on the FIHS. Segment is scheduled to be 4 landed in FY 2000, but will not be completed until after 2002 LOS analysis.													
CR 393 to US 331	Principal Arterial	2	Undivided	1	0.35	2.9	Rural Developed	(C) 11,200	261	15000	2001	15000	F
											2005	17400	B
											2010	20300	B
Segment is on the FIHS. Segment is scheduled to be 4 landed in FY 2000, but will not be completed until after 2001 LOS analysis.													

TABLE 3 (Continued)
Present and Projected Levels of Service
South Walton County

US 331 to CR 395	Principal Arterial	2	Undivided	0	0	3.0	Rural Developed	(B) 7,200	141 265	12700 10500	2001	11600	D	
		4	Divided	0	0	3.0	Rural Developed	(B) 28,900			2005	13500	D	
											2010	15900	A	
Segment is on the FIHS/ Segment to be 4 landed under Mobility 2000 in FY 2005														
STATE ROAD AND SEGMENT	FUNC. CLASS	NO. LNS.	FACILITY TYPE	TOTAL # OF SIG	SIG PER MI	SEG. LTH	LOS AREA	LOS (STD) & MAX VOL	FDOT COUNT STA #	2001 AADT	LEVEL OF SERVICE ANALYSIS			
											YEAR	VOLUME	LOS	
State Route 30 (US 98) Continued														
CR 395 to Bay County Line	Principal Arterial	2	Undivided	0	0	10.0	Rural Developed	(B) 7,200	270	7700	2001	7700	C	
		4	Divided	0	0	10.0	Rural Developed	(B) 28,900			2005	8300	C	
											2010	9200	A	
Segment is on the FIHS. LOS Area changed to Rural Developed in 1998. Segment to be 4 landed under Mobility 2000 in FY 2005.														
State Route 83 (US 331)														
SR 8 (I-10) to Freeport city Limit	Principal Arterial	2	Undivided	0	0	11.4	Rural Undev.	(C) 8,600	1511 9938	9400 7900	2001	8650	D	
											Segment is on the Intrastate System. This area is within the Small Urban Boundary and is analyzed using the Over 5,000 not in Urbanized Area Table. Segment is not located within the TPO planning Boundary. The LOS is monitored at the request of FDOT.	2005	9700	D
												2010	11100	D

TABLE 3 (Continued)
Present and Projected Levels of Service
South Walton County

Freeport City to Limit to SR 20	Principal Arterial	2	Undivided	1	0.5	2	Rural Developed	(C) 11,000	246 250	7800 9300	2001	8550	C
											2005	10200	C
											2010	12200	D
Segment is on the Intrastate System.													
State Route 83 (US 331S)													
SR 20 to North Approach to Choctawatchee Bay Bridge	Principal Arterial	2	Undivided	1	0.2	5.0	Rural Developed	(C) 11,000	275	11500	2001	11500	D
											2005	13700	D
											2010	16400	F
Segment is on the Intrastate System													
STATE ROAD AND SEGMENT	FUNC. CLASS	NO. LNS.	FACILITY TYPE	TOTAL # OF SIG	SIG PER MI	SEG. LTH	LOS AREA	LOS (STD) & MAX VOL	FDOT COUNT STA #	1999 AADT	LEVEL OF SERVICE ANALYSIS		
											YEAR	VOLUME	LOS
State Route 83 (US 331S) (Continued)													
North approach to Choctawatchee Bay Bridge to SR 30 (US 98)	Principal Arterial	2	Undivided	0	0	5.0	Rural Developed	(C) 12,700	123	10900	2001	10900	C
											2005	12900	D
											2010	15300	D
Segment is on the Intrastate System													
County Route 30A													
US 98 to CR 393	Minor Arterial	2	Undivided	0	0	3.5	Rural Undev.	(C) 8,600	220	6100	2001	6100	C
											2005	7500	C
											2010	9000	D
CR 30A													
CR 393 to CR 395	Minor Arterial	2	Undivided	0	0	7	Rural Developed	(C) 12,700	258 263 267	6600 4900 5900	2001	5800	B
											2005	7000	B
											2010	8500	C
County Route 30A													
CR 395 to US 98 (SR 30)	Minor Arterial	2	Undivided	0	0	8.8	Rural Undev.	(C) 8,600	268 235	8000 6500	2001	7250	C
											2005	8950	D
											2010	11000	D

TABLE 3 (Continued)
Present and Projected Levels of Service
South Walton County

County Route 83													
US 98 to CR 30A	Minor Arterial	2	Undivided	0	0	2.1	Rural Undev.	(C) 8,600	262	1000	2001	1000	A
											2005	1200	A
											2010	1400	A
County Route 83A													
SR 20 to SR 20	Minor Collector	2	Undivided	0	0	8.6	Rural Undev.	(C) 8,600	240 223	1000 1300	2001	1150	A
											2005	1250	A
											2010	1380	A
STATE ROAD AND SEGMENT	FUNC. CLASS	NO. LNS.	FACILITY TYPE	TOTAL # OF SIG	SIG PER MI	SEG. LTH	LOS AREA	LOS (STD) & MAX VOL	FDOT COUNT STA #	2001 AADT	LEVEL OF SERVICE ANALYSIS		
YEAR	VOLUME	LOS											
County Route 283													
US 98 to CR 30A	Major Collector	2	Undivided	0	0	1.7	Rural Undev.	(C) 8,600	112	3100	2001	3100	A
											2005	3900	B
											2010	4900	B
County Route 393													
US 98 to CR 30A	Minor Collector	2	Undivided	0	0	1.9	Rural Undev.	(C) 8,600	221	3600	2001	3600	B
											2005	4400	B
											2010	5300	B
County Route 395													
US 98 to CR 30A	Minor Collector	2	Undivided	0	0	3	Rural Undev	(C) 8,600	214	3200	2001	3200	B
											2005	4000	B
											2010	5000	B
County 457													
Mack Bayou Road US 98 (SR 30) to Turquoise Beach	Minor Arterial	2	Undivided	0	0	1.2	Trans.	(C) 12,900	256	3000	2001	3000	B
											2005	3300	B
											2010	3600	B

Table 4
Bicycle and Pedestrian Needs

Ranking (ID #)	Roadway	Roadway Segment	Length	Project Description
9 (W-1)	CR30A	From US 98 to US 98	18.6 miles	Bike Lanes and Sidewalks
24 (W-23)	US 331	From SR 20 to Freeport High School	0.80 miles	Bike Lanes and Sidewalks
46 (W-24)	Sr 20	From CR 83A to US 331 South	1.01 miles	Bicycle Lanes and Sidewalks
81 (W-30)	Kylea Laird Dr.	From SR 20 to US 331	0.55	Sidewalks

Source: MPO 2025 Needs Plan

The foregoing analysis has indicated certain roadway improvement needs, in particular SR 20 and US 331 in the Freeport area. The MPO 2025 Needs Plan also addresses the Bicycle and Pedestrian facility needs for the area. These needs are shown in Table 4. The next step is to compare the needs to the existing plan for roadway improvements. Table 4 5 lists the planned improvements for the whole county in the current FDOT Five-Year Construction Plan.

By comparing the data in Tables 3, 4 and 5, it can be seen that the most critical roadway need in Freeport, i.e., improvement to SR 20, construction of the SR 83 (US 331) bypass around Freeport will potentially eliminate the deficiencies listed for SR 83 from the City Limit to SR 20 and the segment of SR 20 between SR 83 (US 331N) and SR 83 (US 331S), has been deleted by FDOT from the current construction program. Capacity improvements to US 331 North of Freeport and South of SR 20 will also be required within the planning period.

TABLE 5
FDOT FIVE-YEAR CONSTRUCTION PLAN

Highway	Project Description	Length of Work	Work Mix	Fiscal Year(s)
SR 30 (US 98)	From CR 30A West to SR 83 (US 331)	6.08 miles	Widen 2 lanes to 4 lanes, divided 5-foot paved shoulders or bike lanes	02/03
SR 30 (US 98)	From US 331 (SR 83) to Peach Creek	3.89 miles	Widen 2 lanes to 4 lanes, divided 5-foot paved shoulders or bike lanes	01/02
SR 30 (US 98)	From Peach Creek to Bay County Line	8.87 miles	Widen 2 lanes to 4 lanes, divided 5-foot paved shoulders or bike lanes	01/02
SR 83 (US 331)	From SR 20 to Owl's Head Road	5.00 miles	Construct new 2 lane bypass around Freeport, construct 5-foot paved Shoulders	04/05
Walton County Bridges (No. 4, 6, 7, 8, 37, 73, 105)			Bridge Improvements	01/02
SR 83 (US 331)	Choctawhatchee Bay Bridge	1.43 miles	Bridge Improvements – seal cracks	02/03

Source: FDOT, Five-Year Construction Plan - 2001/02 (FY 01) through 2005/06 (FY 06).

TABLE 6
ADOPTED YEAR 2025 TRANSPORTATION NEEDS PLAN
SOUTH WALTON COUNTY

DESCRIPTION OF ROAD SEGMENT	DESCRIPTION OF IMPROVEMENT
SR 30 (US 98), Walton County Line to Old US 98 in Sandestin	4 to 6 lanes
SR 30 (US 98), End of 4 lane to CR 30A	2 to 4 lanes
SR 30 (US 98), CR 30A to US 331	2 to 4 lanes
SR 30 (US 98), US 331 to Peach Creek	2 to 4 lanes
SR 30 (US 98), Peach Creek to Bay County Line	2 to 4 lanes
US 331 realignment, SR 20 to Owl's Head Road	New roadway

Source: Ft. Walton Beach TPO Project Priorities FY 2003/05-2008/09

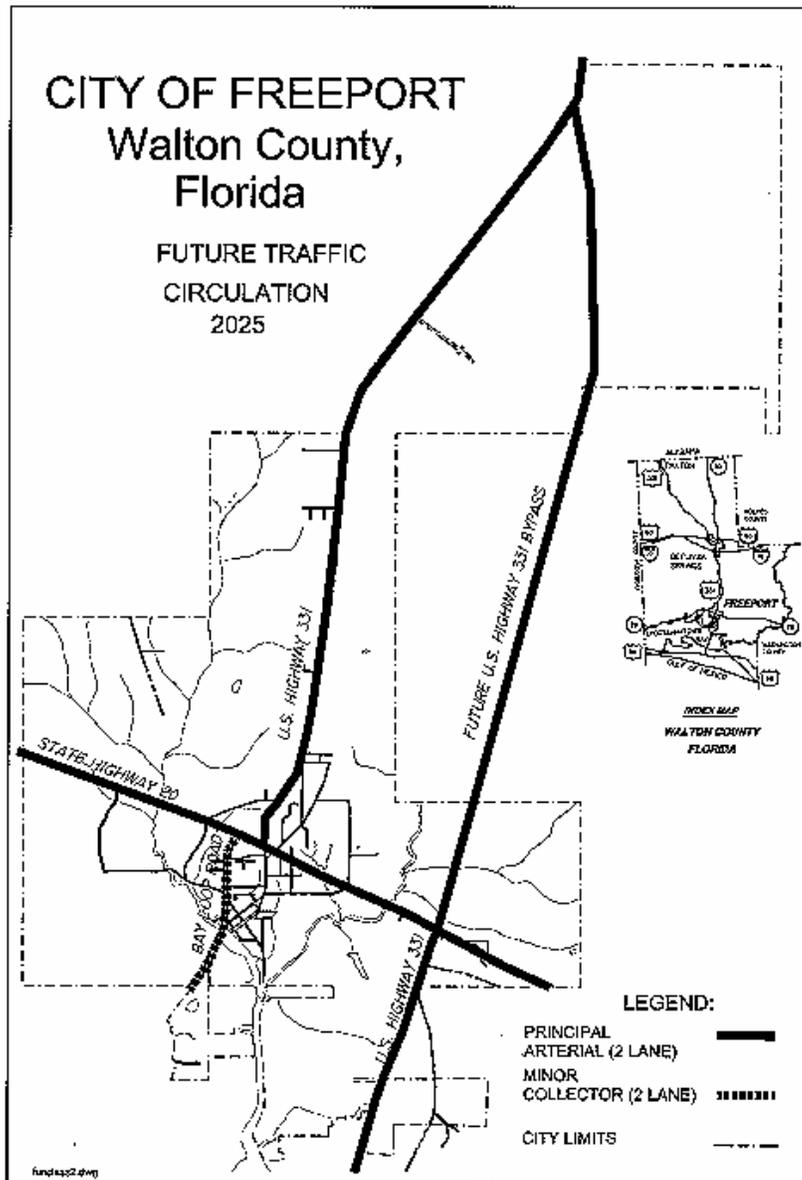


Figure 5

III. IMPLEMENTATION

Preparation of a comprehensive plan is the first step towards orderly and efficient growth for a community. Chapter 163 mandates the implementation of the comprehensive plan. This section of the Traffic Circulation Element will

outline the techniques that the City will use to implement the established Goals, Objectives and Policies.

The City of Freeport will coordinate with Walton County and the Department of Transportation to seek solutions to future transportation needs. A cooperative traffic count program for selected roadways not currently being counted by the FDOT will be explored.

The City will seek cooperative arrangements with other area local governments to monitor the traffic impacts of new development on area roadways. Table 67 presents trip generation rates that will be used in this monitoring program. These rates are based on institute of Traffic Engineering Studies and information developed by the Ft. Walton Beach Metropolitan Planning Organization.

TABLE 7
TRIP GENERATION RATES

Land Use Type	ITE Code	Trip Generation Rate		
		Variable	Trip Generation	Measurement Period
Water ports	010	Ship berth	171.52	Per day
		Acre	11.93	Per day
		Note: No peak hour data available in the ITE Manual		
Commercial Airports	021	Flights per day	8.17/6.96	AM/PM peak hour
General Aviation Airport	022	Flights per day	0.24/0.30	AM/PM peak hour
Truck Terminals	030	Employee	0.66/0.62	AM/PM peak hour
		Acre	7.74/7.24	
General Light Industrial	110	Employee	0.48/0.51	AM/PM peak hour
		1,000 Gross Sq. Ft.	1.01/1.08	
		Acre	7.96/8.77	
General Heavy Industrial	120	Employee	0.40/0.40	AM/PM peak hour
		1,000 Gross Sq. Ft.	No list/0.68	
		Acre	6.41/4.92	
Industrial Park	130	Employee	0.43/0.45	AM/PM peak hour
		1,000 Gross Sq. Ft.	0.82/0.86	
		Acre	8.29/8.67	
Manufacturing	140	Employee	0.39/0.40	AM/PM peak hour
		1,000 Gross Sq. Ft.	0.78/0.75	
		Acre	9.30/9.21	
Warehousing	150	Employee	0.55/0.58	AM/PM peak hour
		1,000 Gross Sq. Ft.	0.57/0.61	
		Acre	8.34/8.77	
Mini-Warehouse	151	Employee	10.5	Peak Hour Saturday
		1,000 Gross Sq. Ft.	0.40	
		Storage Unit	0.04	

TABLE 7
TRIP GENERATION RATES
(Continued)

Single Family Detached	210	Dwelling Unit	0.77/1.02	AM/PM peak hour	
		Person	0.21/0.27		
		Vehicle	0.51/0.67		
		Acre	2.08/2.73		
Apartment	220	Person	0.30/0.40	AM/PM peak hour	
		Vehicle	0.50/0.61		
		Dwelling Unit	0.55/0.67		
Low-Rise Apartment	221	Dwelling Unit	0.51/0.62	AM/PM peak hour	
		Person	0.28/0.33		
High-Rise Apartment	222	Dwelling Unit	0.34/0.40	AM/PM peak hour	
		Person	0.22/0.20		
Residential Condominium/Townhouse	230	Dwelling Unit	0.44/0.52	AM/PM peak hour	
		Person	0.19/0.24		
		Vehicle	0.25/0.31		
Mobile Home Park	240	Person	0.20/0.27	AM/PM peak hour	
		Vehicle	0.28/0.37		
		Occupied Unit	0.44/0.60		
		Acre	3.46/4.61		
Senior Adult Housing - Detached	251	Dwelling Units	0.31/0.35	AM/PM peak hour	
Recreational Homes	260	Dwelling Units	0.36	Weekend peak hour	
		Acres	0.16		
Residential Planned Unit Development	270	Dwelling Units	0.58/0.72	AM/PM peak hour	
		Acres	3.27/4.13		
Hotel	310	Occupied rooms	0.87	Weekend peak hour	
		Rooms	0.72		
		Employees	0.83		
Motel	320	Occupied Rooms	0.76	Weekend peak hour	
		Rooms	0.44/0.56		AM/PM peak hour
		Employees	1.16/1.24		
Resort Hotel	330	Occupied Rooms	0.47/0.59	AM/PM peak hour	
		Employees	0.24/0.31		
		Rooms	0.41/0.51		
City Park	411	Acres	1.59	Daily rate	
		Picnic Site	5.87		
		Note: No peak hour data available in the ITE Manual			
County Park	412	Acres	3.60	Sunday peak hour	
State Park	413	Acres	0.03	Sunday peak hour	
		Picnic Site	0.95		
		Employees	7.59		
Marina	420	Berths	0.27	Saturday peak hour	
		Acres	34.49	Sunday daily rate	
Golf Course	430	Employees	2.58	Saturday peak hour	
		Acres	0.64		
		Holes	4.59		

TABLE 7
TRIP GENERATION RATES
(Continued)

Racquet/Tennis Club	491	Employees	7.71	Saturday peak hour
		Courts	2.30/4.38	AM/PM peak hour
		1,000 sq. ft. gross floor area	0.84	PM peak hour
Military Base	501	Employees	0.37/0.37	AM/PM peak hour
Elementary School	520	Employees	5.19/3.45	Am/PM peak hour
		Students	0.42/0.28	
		1,000 Sq. Ft. Gross Floor Area	4.69/3.13	
Middle School	522	Students	0.53/0.30	AM/PM peak hour
		1,000 Sq. Ft. Gross Floor Area	4.35/2.52	
High School	530	Students	0.41/0.28	AM/PM peak hour
		Employees	4.63/3.21	
		1,000 Sq. Ft. Gross Floor Area	3.06/2.12	
Junior/Community College	540	Students	0.12/0.12	AM/PM peak hour
		Employees	1.75/1.49	
		1,000 Sq. Ft. Gross Floor Area	3.09/2.64	
University/College	550	Students	0.20/0.24	AM/PM peak hour
		Employees	0.78/0.91	
Church	560	1,000 Sq. Ft. Gross Floor Area	11.76	Sunday peak hour
		Seats	0.63	
Day Care Center	565	Employees	5.14/5.19	AM/Pm peak hour
		1,000 Sq. Ft. Gross Floor Area	13.56/13.91	
		Students	0.82/0.85	
Library	590	Employees	3.89/6.39	AM/PM peak hour
		1,000 Sq. Ft. Gross Floor Area	4.32/7.02	
Hospital	610	Employees	0.39/0.47	Am/PM peak hour
		1,000 Sq. Ft. Gross Floor Area	1.47/1.61	
		Beds	1.24/1.44	
Nursing Home	620	Employees	1.25	Saturday peak hour
		Beds	0.40	AM/PM peak hour
		1,000 Sq. Ft. Gross Floor Area	0.42/0.72	
Clinic	630	Employees	1.31	PM peak hour
		Full-time Doctors	4.43	
General Office Building	710	Employees	0.48/0.46	AM/PM peak hour
		1,000 Sq. Ft. Gross Floor Area	1.55/1.49	

TABLE 7
TRIP GENERATION RATES
(Continued)

Single Tenant Office Building	715	Employees	0.53/0.50	AM/PM peak hour
		1,000 Sq. Ft. Gross Floor Area	1.80/1.73	
Medical-Dental Office Building	720	Employees	0.80/0.97	AM/PM peak hour
		1,000 Sq. Ft. Gross Floor Area	3.62/4.45	
Government Office Building	730	Employees	1.02/1.91	AM/PM peak hour
		1,000 Sq. Ft. Gross Floor Area	5.88/11.03	
State Motor Vehicle Department	731	Employees	4.97/5.35	AM/PM peak hour
		1,000 Sq. Ft. Gross Floor Area	18.53/19.93	
Post Office	732	Employees	3.15/3.62	AM/PM peak hour
		1,000 Sq. Ft. Gross Floor Area	12.19/14.67	
Office Park	750	Employees	0.43/0.39	AM/PM peak hour
		1,000 Sq. Ft. Gross Floor Area	1.74/1.50	
		Acres	25.65/28.28	
Research and Development Center	760	Employees	0.43/0.41	AM/PM peak hour
		1,000 Sq. Ft. Gross Floor Area	1.24/1.08	
		Acres	16.77/15.44	
Business Park	770	Employees	0.45/0.39	AM/PM peak hour
		1,000 Sq. Ft. Gross Floor Area	1.43/1.29	
		Acres	18.86/16.84	
Building Materials and Lumber Store	812	Employees	3.94/3.83	AM/PM peak hour
		1,000 Sq. Ft. Gross Floor Area	4.16/5.56	AM/PM peak hour
			9.58	Saturday peak hour
Free-standing Discount Superstore	813	1,000 Sq. Ft. Gross Floor Area	3.17/4.03	AM/PM peak hour
			5.01	Saturday peak hour
Specialty Retail Center	814	1,000 Sq. Ft. Gross Floor Area	6.84/5.02	AM/PM peak hour
			42.04	Saturday peak hour
Free-standing Discount Store	815	1,000 Sq. Ft. Gross Floor Area	5.27/5.43	AM/PM peak hour
			7.58	Saturday peak hour
		Employees	2.94/3.52	AM/PM peak hour
			4.09	Saturday peak hour

TABLE 7
TRIP GENERATION RATES
(Continued)

Hardware/Paint Store	816	Employees	5.33/5.43	AM/PM peak hour
			11.60	Saturday peak hour
		1,000 Sq. Ft. Gross Floor Area	4.91/4.74	AM/PM peak hour
			11.18	Saturday peak hour
		Acres	54.62/55.64	AM/PM peak hour
			118.97	Saturday peak hour
Nursery (Garden Center)	817	Employees	2.32/2.61	AM/PM peak hour
			5.78	Saturday peak hour
		1,000 Sq. Ft. Gross Floor Area	4.41/4.97	AM/PM peak hour
			11.00	Saturday peak hour
		Acres	8.74/9.85	AM/PM peak hour
			21.79	Saturday peak hour
Shopping Center	820	1,000 Sq. Ft. Gross Floor Area	4.97	Saturday peak hour
		Notes: (1) A wide variation in daily numbers as well as by size of centers. (2) Christmas Season introduces a different trend		
New Car Sales	841	Employees	0.67/0.96	AM/PM peak hour
		1,000 Sq. Ft. Gross Floor Area	2.20/2.72	
Supermarket	850	1,000 Sq. Ft. Gross Floor Area	10.05/12.02	AM/PM peak hour
			18.93	Sunday peak hour
Convenience Market (Open 24 hours)	851	1,000 Sq. Ft. Gross Floor Area	73.10/53.42	AM/PM peak hour
			77.11	Saturday peak hour
Convenience Market with Gasoline Pumps	853	Vehicle Fueling Positions	17.03/19.98	AM/PM peak hour
		1,000 Sq. Ft. Gross Floor Area	45.23/62.57	
Wholesale Market	860	Employees	0.70/0.64	AM/PM peak hour
		1,000 Sq. Ft. Gross Floor Area	0.58/0.52	
		Acres	11.00/9.94	
Home Improvement Superstore	862	1,000 Sq. Ft. Gross Floor Area	2.85/3.05	AM/PM peak hour
			5.40	Saturday peak hour
Furniture Store	890	1,000 Sq. Ft. Gross Floor Area	0.40/0.53	AM/PM peak hour
			0.92	Sunday peak hour
		Employees	1.09/1.27	AM/PM peak hour
			2.50	Sunday peak hour

TABLE 7
TRIP GENERATION RATES
(Continued)

Walk-in Bank	911	Employees	8.74/9.42	AM/PM peak hour
		1,000 Sq. Ft. Gross Floor Area	21.49/42.02	
Drive-in Bank	912	Employees	9.65/11.77	AM/PM peak hour
		1,000 Sq. Ft. Gross Floor Area	31.99/53.46	
		Drive-in Lanes	48.70/75.65	
Quality Restaurant	931	1,000 Sq. Ft. Gross Floor Area	5.57/9.02	AM/PM peak hour
			10.82	Saturday peak hour
		Seats	0.16/0.30	AM/PM peak hour
			0.33	Saturday peak hour
High-Turnover (Sit-Down) Restaurant	932	1,000 Sq. Ft. Gross Floor Area	13.53/18.58	AM/PM peak hour
			20.0	Saturday peak hour
		Seats	0.60/0.82	AM/PM peak hour
			0.88	Saturday peak hour
Fast-Food Restaurant with Drive-Through Window	934	1,000 Sq. Ft. Gross Floor Area	54.81/46.68	AM/PM peak hour
			72.74	Sunday peak hour
		Seats	1.49/1.61	AM/PM peak hour
			2.46	Saturday peak hour
Gasoline/Service Station with Convenience Market	945	Vehicle Fueling Positions	10.56/13.57	AM/PM peak hour
		1,000 Sq. Ft. Gross Floor Area	78.06/97.14	

Source: Trip Generation, 3rd Edition, 7th Edition, An Informational Report, Institute of Transportation Engineering, 1982-1997 2003.

Other implementation tools include establishing minimum setback requirements and minimum rights-of-way for various roadways. Setback requirements are established to provide guidance in determining the distance back from the right-of-way at which buildings and related structures should be constructed.

Setback line distances will increase as land use types change and corresponding distance from the Central Business District (CBD) increases. These short setback distances have been developed based upon the fact that a large number of buildings already existing in the CBD are in close proximity to existing street rights-of-way. Buildout within the CBD is for the most part complete with the exception of redevelopment sections; therefore, increasing setback line distances in this area would not lead to an appreciable difference in future CBD area character or have a significant impact upon present or future traffic conditions and circulation.

Recommended setback line distances in the Fringe area are greater than those setback line distances recommended for the CBD. In Urban Fringe areas, development, although fairly heavy, is not as complete as development within the CBD. By increasing setback distances in Urban Fringe areas, traffic circulation will be improved and off-street parking opportunities will be increased. Necessary street improvements and expansions can be accomplished with less difficulty.

The largest setback line distances recommended are those for land use types found in rural areas. Maintaining large setback and rights-of-way distances in rural areas will allow development to occur in an orderly and progressive manner while protecting the natural and scenic, rural environment from urban encroachment. The large minimum rights-of-way and setback requirements for land uses found in these areas will also allow for necessary street or highway expansion and leave large natural areas to flourish along these expanded roadways. Table 8 shows setback distances recommended by the MPO Study.

TABLE 8
SETBACK DISTANCE
BY FACILITY TYPE AND AREA TYPE

	CBD	Fringe	Rural
2-Lane Collector	10 Ft.	20 Ft.	44 Ft.
4-Lane Undivided Arterial	10 Ft.	20 Ft.	48 Ft.
4-Lane Divided Arterial	10 Ft.	24 Ft.	60 Ft.
6-Lane Divided Arterial	10 Ft.	30 Ft.	80 Ft.
Freeway	15 Ft.	30 Ft.	100 Ft.

*Distance measured from Right-of-Way.

Source: Ft. Walton Beach MPO - Technical Memo #4 March 1987.

Rights-of-way for the Fort Walton Beach Urban Area were also established using a combination of land use and roadway types as defined for urban transportation planning. Right-of-way widths were developed using Florida Department of Transportation typical cross-sections for roadway types. Table 9 reflects recommended right-of-way distance requirements.

TABLE 89
RIGHT-OF-WAY.
BY FACILITY TYPE AND AREA TYPE

	<u>CBQ</u>	<u>Fringe</u>	<u>Rural</u>
2-Lane Collector	60 Ft.	60 Ft.	100 Ft.
4-Lane Undivided Arterial	96 Ft.	96 Ft.	125 Ft.
4-Lane Divided Arterial	112 Ft.	112 Ft.	200 Ft.
6-Lane Divided Arterial	112 Ft.	112 Ft.	245 Ft.
4-Lane Freeway	N/A	N/A	300 Ft.
6-Lane Freeway	N/A	N/A	350 Ft.

Source: Ft. Walton Beach MPO - Technical Memo #4 March 1987.